



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION:	CF34-10E5A1	BYPASS RATIO:	5.1
UNIQUE ID NUMBER:	11GE144	PRESSURE RATIO ( $\pi_{00}$ ):	27.2
COMBUSTOR:	2253M21-PFN		
ENGINE TYPE:	TF	RATED THRUST ( $F_{00}$ ) (kN):	83.7

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	10.5	88.9	44.5	16.4
AS % OF ORIGINAL LIMIT	53.4	75.3	47.1	66.0
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			58.9	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			69.9	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			78.0	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			92.0	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES  
 x DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	0.870	0.05	0.89	19.68	12.7
CLIMB OUT	85	2.2	0.717	0.09	0.77	16.22	6.9
APPROACH	30	4.0	0.239	0.10	4.02	7.94	0.1
IDLE	7	26.0	0.088	4.02	41.73	3.69	0.5
LTO TOTAL FUEL (kg) or EMISSIONS (g)			326	568	6067	3214	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				6.8	72.5	38.4	12.7
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.7	2.5	0.2	1.5
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				6.3-7.6	70-75	38.2-38.7	11.6-14.4

### ACCESSORY LOADS

POWER EXTRACTION	0	(kW)	AT	All	POWER SETTINGS
STAGE BLEED	0	(% CORE FLOW)	AT	All	POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.2-97.9
TEMPERATURE (K)	292-298
ABS HUMIDITY (kg/kg)	0.0053-0.0078

### FUEL

SPEC	Jet A-1
H/C	1.92
AROM (%)	15.9-17.5

MANUFACTURER: General Electric Company  
 TEST ORGANIZATION: Peebles Test Operation  
 TEST LOCATION: Site 3C  
 TEST DATES: 05/06/2009-06/06/2009

### NO<sub>x</sub> REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
x	2.3.2 e) (CAEP/8)

### REMARKS

- GE Report R2008AE622Block 2 Engines
- Engine 994-743/1
- Engines with 2251M21 combustor or equivalent
- Alternate fuel injector manufacturer
- Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
- NO<sub>x</sub> levels in accordance with Part III, Chapter 2, 2.3.2 e)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)